NATIONAL REMEDY REVIEW BOARD

Questions and Answers for
Superfund Site Managers

December 29, 2011

1. What is the National Remedy Review Board?

In October 1995, the EPA Administrator announced a collection of initiatives designed to help control remedy costs and to promote consistent and cost-effective Superfund cleanup decisions. As one of these initiatives, the National Remedy Review Board (NRRB, the Board) reviews proposed high-cost cleanup decisions to help evaluate whether they are consistent with current law, regulations, and Agency policy and guidance.

The Board is a technical and policy review group made up of members that have experience with both regional and Headquarters perspectives in the Superfund remedy selection process. Its members include senior managers and technical experts from each EPA region, as well as senior technical and policy experts from other EPA offices. These include the Office of Superfund Remediation and Technology Innovation (OSRTI), Office of Research and Development, Office of Radiation and Indoor Air, Federal Facilities Restoration and Reuse Office (FFRRO), Office of Site Remediation Enforcement, and Office of General Counsel. The Board is chaired by OSRTI.

The Board generally meets quarterly to review proposed decisions that meet its cost-based review criteria. The product of the review is a memorandum sent from the Board to the regional Superfund division director that documents Board recommendations about the proposed cleanup strategy. The Board review process allows full input from EPA regional site managers and other site team members as deemed appropriate by the region whose site is under review. EPA's site managers are asked to participate in all deliberations to ensure that the Board fully understands the circumstances influencing their proposals.

2. Which sites will the Board review?

Typically, the Board reviews cleanup strategies after the remedial investigation/feasibility study (RI/FS) and before the region releases the proposed plan for comment. If necessary, the Board may review sites at other phases of cleanup, possibly before the FS is completed. The Board tries to accommodate regional preferences for scheduling reviews; however, it may not be able to meet all desired regional schedules. It is therefore imperative that site managers work closely with their Board representatives and regional management to schedule sites for review as soon as cost estimates trigger the review criteria outlined below.

Both National Priorities List (NPL) and non-NPL (e.g., "Superfund Alternative") site actions are reviewed by the Board whenever the Agency expects the work to be done under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and other relevant guidance, **and** when the general criteria below are met. The Board reviews

sites when EPA is directly responsible for the decision or has a concurrence role, including PRP-lead, special account-funded and federal facility-lead sites.

Board Review Criteria

The Board will typically review proposed interim and final Superfund response decisions at both NPL and non-NPL (including Superfund Alternative) sites for which the proposed:

- Remedial action costs more than $25 million; or
- Non-time critical removal actions (NTCRA), at sites other than a federal facility, is estimated to cost more than $25 million; or

Board reviews will also occur for NPL and non-NPL sites following changes made after the release of the proposed plan:

- A different or modified alternative (which was included in the original proposed plan) is selected by the region that costs more than 20 percent when compared to the original proposal **and** these costs trigger review criteria (even when the earlier proposed action had undergone Board review).
- A new alternative is developed and the costs of the new alternative would trigger a review.

The Board may review (at regional discretion) sites where the proposed action's original cost estimate increases more than 20 percent after issuance of the Proposed Plan due to either updated cost information or **minor** changes to the alternative that trigger review criteria. Examples of minor changes are presented in Chapter 7 of *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, Office of Solid Waste and Emergency Response Directive No. 9200.1-23P, July 1999 (ROD guidance).

Federal Facility Sites (other than the Department of Energy)

Federal facility sites (including Formerly Utilized Sites Remedial Action Program- FUSRAP) follow the same review criteria above with the exception of NTCRAs; federal facility NTCRAs do not undergo Board review unless requested by the federal facility. Decisions at Base Realignment and Closure (BRAC) sites do not undergo Board review.

Department of Energy Sites

The NRRB typically will review sites where the primary contaminant is radioactive waste and the proposed remedial action costs more than $75 million. The Board will also review NPL sites with NTCRAs exceeding $30 million involving primarily radioactive waste; (per joint Department of Energy/EPA memorandum dated October 5, 1998).

3. Can Regions Request an optional early consultation?

Regions may request an optional NRRB consultation on remedial alternatives at the draft FS scoping stage or any time prior to the draft proposed plan. Regions will not be expected to respond to this early review. Regions should notify states, tribes, local governments, PRPs and local communities when a site will be the subject of an early consultation. Stakeholder, including PRPs, input (up to 10 pages) should be requested as part of the early consultation process. This optional consultation will not excuse a site from NRRB review at the proposed plan stage if the proposed remedial action meets the NRRB review criteria.

4. Can Regions Request an exemption from Board review?

Regions may request that the NRRB Chair exempt their eligible site from Board review. In addition, Regions can request an exemption in cases where the Region selects a different alternative (after the release of the Proposed Plan for public comment) which costs more than 20 percent from the original proposal and these costs trigger review. The OSRTI office director will make the final exemption decision. The Regional Division Directors can appeal a decision to deny an exemption to the OSRTI Office Director. Regions should offer states, tribes, local governments, PRPs and local communities an opportunity to summarize in writing their opinion regarding the proposed exemption decision. This information will be forwarded to the Board chair along with the exemption request. Regions will not be expected to respond to these letters but will notify the commenters of the final decision regarding an exemption.

<u>NRRB Exemption Request Process and Criteria</u>

The region requesting an exemption from an NRRB review should provide a summary of the following information to the Board chair. Exemption requests should not exceed 10 pages.

1. Site name
2. Media to be addressed, primary contaminants of concern, preliminary remediation goals
3. Scope and role of the operable unit or response action
    a. Does this action hinge on previous actions?
4. Risk summary

5. Remedial action objectives
6. Alternatives – do they address
    a. TI or MNA?
    b. Treatment of principal threat waste?
    c. Presumptive remedy?
    d. Addressing munitions? (no chemical COCs or groundwater)
7. Tribal or state ARARs
8. Stakeholder views
    a. Congressional or community controversy?
9. Decisions requiring headquarters coordination or consultation
    a. Non-time critical removal actions over $ 6M
    b. Remedies for lead, radionuclides, PCBs, asbestos, mercury and dioxin
10. Concurrence of regional division director on exemption request

After receipt of the exemption request, the Board chair will hold a conference call with the region to discuss the request. The Board chair will forward the exemption request and recommendation to the OSRTI office director. If the site is a federal facility the FFRRO Board member and office director will participate in the exemption process.

The region should seek input from site stakeholders (e.g., PRPs, states, tribes, and communities) on the request for exemption from NRRB review. Stakeholders may submit up to 10 pages stating their specific issues or concerns. Submissions may be sent to the region or Board Chair at the following address:

Amy Legare
National Remedy Review Board
US EPA
1200 Pennsylvania Ave., NW MC5204P
Washington, DC 20460

Or

Legare.amy@epa.gov

The OSRTI office director will make the final exemption decision after consultation with the regional division director and consideration of stakeholder input.

5. Will the Board review sites with Record of Decision amendments or Explanation of Significant Differences?

Generally, the Board reviews proposed Record of Decision (ROD) amendments where there is a change from the original remedial strategy (e.g., moving from a containment remedy to a treatment remedy) that results in remedial action costs greater than $25 million.

Generally, the Board does not review ROD amendments where the:

- Original remedial strategy remains the same (e.g., where the cost increase results from an unexpected increase in contaminated soil volume), even if there is an appreciable change in cost (however, the region should consult with their board representative to confirm review criteria) or
- Amendment results in a cost savings.

The Board usually does not review Explanation of Significant Differences unless the region believes the site would benefit from such a review.

6. Will the Board review sites with final Record of Decision following an interim Record of Decision?

Generally, the Board will review final RODs that follow an interim ROD where there are new significant capital costs in addition to the incremental operation and maintenance (O&M) costs associated with the final ROD. When the costs of a planned final ROD (following an interim ROD) exceed the trigger criteria due to costs driven primarily by the interim remedy's O&M (e.g., the plant is already constructed and the remaining costs are due to long term system operation), the site does not require Board review. In lieu of a Board review, the region should conduct an optimization review, consistent with EPA guidance, before the final remedy is selected. Information on remedy optimization may be found at this link: http://www.epa.gov/superfund/cleanup/postconstruction/optimize.htm

7. Will the Board review proposed sediment actions that are also subject to Headquarters consultation or Contaminated Sediments Technical Advisory Group review under Office of Solid Waste and Emergency Response Directive 9285.6-08, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites*?

Yes. As explained in the Office of Solid Waste and Emergency Response (OSWER) Directive 9285.6-11, *OSRTI Sediment Team and NRRB Coordination at Large Sediment Sites*, issued on March 5, 2004, review of consultation memos by the OSRTI Sediment Team (for Tier 1 sites) and by the Contaminated Sediment Technical Advisory Group (CSTAG) will be coordinated

with the Board so that the region receives only one set of comments at the time of the proposed plan. This process is explained in more detail below.

Tier 1 Sites

For Tier 1 sites that will undergo a NRRB review, the region should include a draft Tier 1 Consideration Memo in the site information package sent to the Board. A copy of the Consideration Memo should also be sent to the appropriate OSRTI regional coordinator and to the OSRTI Sediment Team leader. The OSRTI Sediment Team will review the Consideration Memo and the site package, and will provide comments to the chair of the NRRB prior to the Board's meeting on the site in question. If the draft Proposed Plan is available, it should also be submitted to the OSRTI regional coordinator and the Sediment Team Leader at that time. If it is not available, it should be submitted as soon as it is drafted. The Sediment Team will not submit separate comments on the Consideration Memo to the region.

As part of its response to the NRRB recommendations, the region should include a revised Tier 1 Consideration Memo that addresses any comments made by the NRRB related to the issues covered by the Memo. If the NRRB chair and OSRTI Sediment Team leader believe that their comments were not appropriately addressed, and after consultation with the OSRTI Regional Branch Chief, the region may be asked to make additional revisions to the Consideration Memo.

Contaminated Sediments Technical Advisory Group Sites

It is anticipated that the proposed remedy for most of the large sites being reviewed by the Contaminated Sediment Technical Advisory Group (CSTAG) will also meet the NRRB review requirements. Therefore, a subset of CSTAG members will participate in the NRRB review. This subset will be selected based on expertise matching the site characteristics. When a site manager prepares the site package for the NRRB it should include a draft Tier 2 Consideration Memo. The memo should document how the region considered all 11 principles when selecting the site's proposed remedy; the memo should normally be less than 20 pages in length. The site manager will be provided with one set of recommendations from this joint review.

8. What is the role of the Office of Superfund Remediation and Technology Innovation?

OSRTI will assign an ad hoc Board member for each review. The ad hoc member will be assigned based on the area of expertise required for the review. For example: risk assessment, contaminated sediments, radiation, groundwater contamination, or vapor intrusion. In addition, the technical regional coordinator will work closely with the Board chair on all aspects of the

review.

OSRTI will also work to develop any needed policy, guidance or training materials deemed necessary after each annual review of recommendations. For additional information see Question 28.

9. Will the Board review proposed remedies selected pursuant to presumptive remedy guidance?

Yes, unless the review is waived by the Board chair. Regions and regional Board members are encouraged to consult with the Board chair on presumptive remedies to ensure a productive review of the proposed remedy.

10. How long does a typical Board review take?

Generally, the review process takes about eight weeks, from the time the Board receives the informational site package until it transmits its recommendations to the region. Regions should consider this additional time in developing the site work plan and Superfund Comprehensive Accomplishment Plan targets. However, regions should also be aware that, in a few cases, Board recommendations may delay site decisions while the regional decision makers consider and respond to Board findings. Also, the region should allow adequate time for preparation of a comprehensive site package. The average preparation time is generally one to two months.

Board reviews are planned for the first month of each quarter of the year. Site managers should notify their regional Board member and the Board chair of the need for a review as soon as possible so the site can be added to the calendar of planned reviews. Generally one to two months time is needed to plan a review with travel, hotel, and meeting space accommodations.

11. What does the Board look at when it reviews a cleanup decision?

Generally, the Board analyzes proposed cleanup strategies to help ensure they are consistent with CERCLA, as amended, the NCP, and relevant EPA cleanup guidance. To assist Board members with these reviews, the region prepares a site information package for each site (see additional questions below and Attachment A for more details). Generally, the Board will not be reviewing the draft FS nor the draft decision document.

When the Board reviews a site, the members consider a variety of information, including

elements of the RI/FS process related to the development of the alternatives and selection of the preferred alternative. Site-specific circumstances often influence the nature of the discussion. Please refer to Appendix D for questions frequently asked by the Board.

12. What are the site manager's responsibilities before the meeting?

As soon as the site manager becomes aware that he/she has a site that may trigger the Board's review criteria, the manager should notify his/her regional board member, who, in turn, should coordinate the NRRB review meeting date.

The site manager should:

- Convey to the regional board member any preferences regarding review timing. The Board tries hard to accommodate the interests of the regions and site managers when scheduling reviews.
- Provide the site-specific charging number to the Board chair as soon as possible once it has been determined that the site will come before the Board.
- Contact the state and any appropriate tribes, Potentially Responsible Parties (PRPs), community groups, or federal facilities to notify them that the site triggers the review criteria. At this time, discuss with these stakeholders the procedures governing their involvement in the review process. A Community Guide is provided in Appendix E. Questions 16-21 of this packet provide additional information on the usual role of these parties in the review process.
- Prepare a site information package that the Board will use to conduct its review. Question 13 and Appendix A present information on the package and a recommended outline.
- Finalize the informational site package at least four weeks before the meeting and provide the package to the relevant regional NRRB member for distribution to Board members in preparation for the site review. The package will be posted on the Board's Quickr site so that Board members may download it at their convenience. Oversized charts, maps or tables should be mailed to the Board members. The mailing list is available from the Board's Quickr site. Please note that **two additional copies** should be mailed to the Board chair for distribution to OSRTI participants.
- Prepare a presentation that summarizes the site, proposed remedy, and major issues. See Appendix C for a suggested outline for the presentation.
- Prepare for the meeting by expecting questions that probe beyond the basic information presented in the site information package (e.g., questions about important assumptions, models, peer reviews or tools used in developing key supporting information). Appendix D presents several lists of questions typically asked during the review and deliberations.
- OPTIONAL: Participate in a pre-meeting conference call two weeks after the Board

receives the site package (i.e., two weeks before the meeting) to give the Board an opportunity to ask clarifying questions regarding the factual information in the site information package and to possibly request more information prior to the board meeting, or as part of the region's presentation at the board meeting. The pre-meeting conference call should provide feedback to the region prior to the board meeting as to whether the information provided is sufficient to support Board discussion and development of key/substantive recommendations. The Board chair and site manager will decide if a pre-call is necessary.

Recognizing that the reviews generally are part of EPA's internal deliberative process, **please label all documents** "DRAFT-DELIBERATIVE."

13. What should be in the site information package?

Appendix A contains a suggested outline for the site information package.

This informational package should be written as a "stand alone" and succinct document that summarizes the key remedy selection issues faced at the site, and explains the regional rationale for choosing its preferred cleanup strategy. Additional detailed documents may be made available for review, at the region's discretion, through Quickr or the Superfund Document Management System. The Board expects to base its review and any resulting recommendations primarily on this document. Inclusion of clear and well labeled maps, figures and tables usually are critical to the review.

Site managers should develop a site information package that tells the story and explains the rationale of the cleanup decision at the site in question. That is, the package should identify and explain the key remedy selection issues and support the preferred cleanup strategy. The exact content may vary based on site conditions. However, all packages should include summary information such as site background, contaminants and media of concern, site characterization, conceptual site model, key modeling land use assumptions and uncertainties, risk analysis, basis for action, the range of alternatives considered, the preferred remedy, and the preferred remedy cost breakout. For example, if a chosen cleanup level is driven by Applicable or Relevant and Appropriate Requirements (ARARs), the information package should explain the ARAR, why the region believes it is applicable or relevant and appropriate, how it affects the remedy, etc. This information can help reduce or eliminate the need for exploring the subject during the review meeting. The package should contain a summary of the state and/or tribe position(s) on the site, and have attached any technical submissions from states/tribes, PRPs, federal facilities, Natural Resource Trustees, community groups and/or other stakeholders as appropriate. The Board expects to base its review and any resulting recommendations on this package.

The Board recommends that the site manager have the draft package reviewed by regional staff unfamiliar with the site to be sure the package is clear and consistent. Site managers should take advantage of the resources provided by their regional Board members and OSRTI's remedy decisions branch; they can give advice on preparing for the review, assembling the package, characterizing key issues, and developing appropriate supporting information.

14. What happens at the meeting?

For each site review, the Board meeting typically lasts one full day and is broken into two stages: *information gathering* and *deliberations*. The role of the various stakeholders is described in subsequent sections of this manual. The site manager should invite state and appropriate tribal representatives to participate in the *information-gathering* phase. Typically, these representatives **do not** participate in the *deliberative* discussion, which the Board limits to EPA personnel.

The site manager begins the information-gathering phase with a short site briefing. Generally, the briefing should not repeat in detail material already presented in the information package. Rather, it should include a brief overview of the site and focus on orienting the Board members to the key site features and key remedy selection issues. Following this briefing, state and/or tribal representatives may present their view of key technical issues. Generally, the total length of the presentations should not exceed one hour (typically EPA 45 minutes, state/tribe 15 minutes). The Board usually spends some time after these presentations asking technical or clarifying questions (refer to Appendix D for examples). The site manager should be familiar with community, state/tribe, and/or PRP technical comments, as the Board will explore these as appropriate.

Following the briefings and the question/answer session, the Board deliberates for several hours, focusing on whether the proposed cleanup decision is cost effective, technically sound, and otherwise consistent with the NCP and/or supported by the most current program guidance. The Board asks the site manager and other regional staff, as determined by the region, to attend the deliberations for follow-up questions and to ensure the site manager understands the Board's proposed recommendations. A draft memorandum normally will be developed at the meeting, detailing any Board findings and recommendations.

Following the review meeting (typically within two to four weeks), the Board chair transmits a final draft of the recommendations to Board members and the site manager before issuing the final recommendations memorandum documenting any recommendations or comments to the appropriate regional division director. EPA expects to post the recommendations memo on the Board's web page within 30 days of the chair's signature.

The Board considers the review to be an internal, deliberative, and (in certain cases) enforcement-sensitive process. Given the nature of the process, the Board defers to regional judgment with respect to releasing documents related to the reviews, and assumes that regions will comport with established relevant Agency policy. The Board expects the region to place the Board recommendations in the site administrative record at the time a proposed plan is published for comment. Regional materials used to support Board reviews (e.g., review packages, briefing materials, and stakeholder memoranda) should also be retained in the regional site-specific administrative record as appropriate.

15. What happens after the meeting?

Regional Response: Regional division directors are asked to respond in writing within a reasonable time frame to the Board chair regarding how the region has or will address board recommendations. As part of this response, the region is asked to describe how the Board's review has impacted the cleanup process. The site manager is encouraged to submit a draft of the regional response to HQ to resolve any remaining issues prior to the issuance of the proposed plan. The site manager should work closely with the Board chair and OSRTI to incorporate the recommendations in the decision documents.

The Board's existence does not change EPA's remedy selection process as provided for in CERCLA and the NCP. The regions retain decision making authority as delineated in formal delegations of authority. The Board does not "approve" or "disapprove" regional proposals. However, the Agency expects decision makers to give Board recommendations substantial weight when finalizing cleanup decisions. If issues arise regarding incorporation of recommendations into decision documents, the OSRTI office director can request a discussion with the regional division director to resolve them.

Public inquiries and release of information: The regions are expected to handle site-specific inquiries related to the reviews. It is expected that regions will place Board recommendations and regional response memoranda in the site administrative records on or before the date that the region issues proposed plans for public comment. See question 25 for further clarification.

Record keeping: In the case of board-related materials, OSRTI maintains the Agency records of pertinent Board-issued documents (e.g., the board memos, operating protocol, etc.). General information, site-specific Board memoranda, and regional responses are available at: http://www.epa.gov/superfund/programs/nrrb/index.htm. EPA regional offices are responsible for retaining all documents prepared for the presentation package either in the site file or administrative record as appropriate (e.g., the site information packages, PRP and stakeholder

submissions and any other information used in the Board process related to the cleanup decision in question). This record-keeping policy is consistent with established Agency guidance.

Web page: The recommendations memo will be posted on the Board's web page within 30 days of the chair's signature. The Board's web page will also provide a link to the Superfund Site Progress Profile that will provide links to decision documents and the administrative record. PRP and stakeholder position papers should be included in the administrative record.

16. What is the role of the PRP?

The Board and its current process do not alter existing mechanisms for PRP involvement in the remedy selection process. The current process allows the PRP to work closely with the Agency in conducting the RI/FS, including appropriate, periodic meetings between EPA and the PRPs to ensure that issues such as site characterization, treatability of contaminated media, and the feasibility of different remedial options are fully considered.

When there is a PRP-lead RI/FS, the site manager should notify the PRPs of the pending review **as soon as the region identifies the site as a review candidate**. At this time, the region should offer the PRPs an opportunity to summarize in writing, 20 pages or less*, any technical issues they believe are pertinent to the cleanup decision, including their recommended approach and rationale for that approach. The site manager should attach the PRP's summary to the site information package submitted to the Board four weeks before the meeting. PRP submissions should be made part of the administrative record.

The region, at its discretion, may solicit comments from PRPs who do not conduct the RI/FS. Generally, the region may do this in cases where PRPs have been substantively involved in RI/FS work and/or remedy selection issues, or if the region believes that PRPs may offer technical comments critical to understanding key remedy selection issues at the site.

Note that those groups that have not been working closely with the Agency early in the remedy selection process will still have the opportunity to comment formally on the proposed action during the proposed plan comment period.

PRPs are not involved in any direct discussions with the Board nor are they involved in Board meetings or pre-meeting calls. EPA is responsible for preparation of the Board's review package.

* PRPs may submit up to 40 pages for sites where the estimated remedial action costs exceed $100M.

17. Can Potentially Responsible Parties or others nominate sites for Board review?

Site managers may get calls from PRPs or other stakeholders asking whether a site can be nominated for Board review. The Board expects to review only those decisions that meet the review criteria.

18. What is the role of federal facilities?

Consistent with policy established by EPA's FFRRO, the Board generally treats federal facilities as PRPs for the purpose of Board reviews.

Please refer to "Which sites will the Board review?" for federal facility review criteria.

19. What is the role of the community?

The Board process does not alter existing mechanisms for community involvement in the remedy selection process. The current community engagement process allows the community to work closely with the Agency in conducting the RI/FS, including appropriate, periodic meetings between EPA and the community to ensure that issues such as site characterization, treatability of contaminated media, and the feasibility of different remedial options are fully considered. The site manager may provide the NRRB Community Guide (Appendix E) to interested stakeholders.

At sites where EPA has awarded a Technical Assistance Grant (TAG) or recognized a Community Advisory Group (CAG), the site manager should notify them of the pending review **as soon as the region identifies the site as a review candidate**. At this time, the region should offer the TAG/CAG groups an opportunity to summarize in writing, 20 pages or less**, any technical issues they believe are pertinent to the cleanup decision, including their recommended approach and rationale for that approach. The site manager should attach this summary to the site information package submitted to the Board four weeks before the meeting. Stakeholder position papers should be included in the administrative record.

Where the site manager has established close working relationships with other stakeholder groups early in the RI/FS process, the site manager may offer these groups the opportunity to submit written technical comment at his/her discretion.

** Stakeholders may submit up to 40 pages for sites where the estimated remedial action costs exceed $100M.

Note that those groups that have not been working closely with the Agency early in the remedy selection process will still have the opportunity to comment formally on the proposed action during the proposed plan comment period.

Community members and TAG technical advisors are not involved in any direct discussions with the Board nor are they involved in Board meetings or pre-meeting calls.

20. Are Board discussions open to the general public?

No. The meetings of the Board are pre-decisional, deliberative discussions and are not open to the general public. Reviews generally occur before the region issues the proposed plan. The Agency is generally at an early stage in its decision making process when the Board meets to discuss the proposed action. The intent of this early Board review is to offer a critical discussion on key remedy selection and cost effectiveness issues **before** the Agency formalizes its position on a preferred cleanup strategy. It is important to note that the Board process does not affect EPA's current procedures for soliciting public comment on proposed cleanup plans.

The recommendations memo will be posted on the Board's web page within 30 days of the chair's signature. The Board's web page will also provide a link to the Superfund Site Progress Profile that will provide links to decision documents and the administrative record. PRP and stakeholder position papers should be included in the administrative record.

21. How do states and tribal governments participate in the reviews?

For each site, the site manager should invite state and appropriate tribal representatives to participate in the *information-gathering* phase of the Board meeting. Typically, these representatives **do not** participate in the *deliberative* discussion, which the Board normally limits to EPA personnel; however, they may be invited to participate for a portion of the deliberations where the site is a state/tribe-lead fund-financed decision or state/tribe-lead enforcement decision where the state or tribe seeks EPA concurrence. Otherwise, the Board generally limits its deliberative discussion to Agency personnel.

Regional staff should **contact the state or tribal representative early** in planning for the Board meeting to discuss the background and purpose of the Board, the structure of the reviews, and to explain how the state/tribe might best prepare for the meeting. The site manager may also provide the Community Guide (Appendix E) to these representatives for further information. At the meeting, the state/tribe is usually offered approximately 10-15 minutes to speak about their specific issues or concerns.

The region should also offer the state or tribal representatives an opportunity to summarize in writing, 20 pages or less***, any technical issues they believe are pertinent to the cleanup decision, including their rationale and recommended approach for site cleanup. The site manager should attach this summary to the site information package submitted to the Board four weeks before the meeting. Stakeholder position papers should be included in the administrative record.

22. What is the role of contractors?

Generally, government contractors can help prepare presentation and package materials but do not participate in presentations or question and answer sessions at board meetings.

23. Does the region convey the Agency's preliminary views on the remedy in question (i.e., for stakeholders to react to)?

Generally, stakeholders have an opportunity to contribute their views on remedy selection issues, consistent with the NCP and Agency guidance. Site managers should not provide stakeholders with any preliminary indication of Agency preferences beyond that which the Agency would provide in the absence of the Board's review.

24. When is it appropriate for Natural Resource Trustee agencies or the Agency for Toxic Substances and Disease Registry to participate in board reviews?

When a Natural Resource Trustee agency or the Agency for Toxic Substances and Disease Registry have formally provided unique or specialized site-specific technical or analytical support for the RI/FS in lieu of (or to supplement) regional expertise in a particular area, the region may invite representative(s) to attend the information-gathering phase of the review meeting but must inform the Board chair of this invitation.

25. When is it appropriate to release Board memoranda and meeting support materials?

The Agency considers the site-specific Board discussion materials, site names, and operable units under consideration to be deliberative and, where appropriate, enforcement confidential. EPA staff should refer questions regarding the nature of the Board discussions and findings to the

*** Up to 40 pages may be submitted for sites where the estimated remedial action costs exceed $100M.

appropriate regional board member or site manager.

The product of a Board review is typically a memorandum from the Board chair to the appropriate regional division director. While the Agency strives to be as open as possible about Board reviews, in some cases it may be appropriate for the region to withhold the Board's recommendations memorandum until the region issues the proposed plan. At that point, the region should place the memorandum in the appropriate site administrative record. The region may release publicly its response to Board recommendations at its discretion, taking into account the internal, deliberative nature of the NRRB process. EPA will post the recommendations memo to the Board's web page within 30 days of the chair's signature. EPA expects that regions will make the regional response available publicly as soon as it is reasonable and appropriate to do so. EPA will also post the regional response on the Board's web page.

In addition, the NRRB web page will provide the internet link to the Superfund Site Progress Profile that links to the site decision documents and administrative records containing stakeholder and PRP position papers.

26. Where can I find information about other Board reviews?

Site managers are encouraged to visit the NRRB internet site at http://www.epa.gov/superfund/programs/nrrb/index.htm. This publicly accessible site contains basic information about the NRRB and its formation, criteria that triggers NRRB review, contact information for Board members, site-specific review memoranda, and regional responses to Board recommendations. Site-specific review memoranda may also be found in the site administrative record.

27. How are Board members selected?

HQ Offices and Regions will be requested every two years to re-evaluate their representatives on the NRRB to confirm that the members have the needed expertise, experience, and time to actively participate and contribute. The chair will request this reevaluation. The qualifications for NRRB board members are:

- Senior Agency managers
- Senior policy experts
- Senior technical experts
- Areas of expertise
    - Remedy selection
    - Cost-effectiveness

    - Program implementation
    - National consistency
    - Applicable or relevant and appropriate requirements
    - CERCLA and the NCP
    - Superfund policy and guidance
- Available to travel at least one week per quarter to discuss proposed remedies
- Ability to commit time for a detailed analysis of review packages
    - Typically three review packages per quarter
- Ability to reach consensus and craft recommendations to promote both consistent and cost-effective decisions at Superfund sites

28. How are recommendations used to benefit the Superfund Program?

Every year the NRRB, in consultation with the regions and OSRTI regional coordinators, will evaluate all the reviews written over that year, looking for recurring issues. OSRTI will work to develop any needed policy, guidance or training materials.

Appendix A

RECOMMENDED OUTLINE

FOR THE SITE INFORMATION PACKAGE

Recommended Outline for the Site Information Package

Inclusion of clear and well labeled maps, tables, and figures with sufficient detail are critical to the review. Time spent by the site manager in preparing the site information package, and additional regional review of the draft site information package, is to the advantage of everyone involved in the reviews, as complex site decisions will likely benefit from careful preparation.

It is recommended that an internal review of the draft site information package be conducted by a colleague that is unfamiliar with the site.

All reference to ROD Guidance Highlights (e.g. ROD Guidance Highlights 6-18 to 6-20) refer to examples found in OSWER Directive 9200.1-23.P, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*.

A. Summary (less than five pages)

1) Site Summary

- Site name and location
- Site account number
- Orientation to the key features of the site and surrounding area
- On site and surrounding land use
- Brief site contamination history, and facility operational history
- Identify media and primary contaminants of concern (COCs) addressed by this proposed action
- List the operable units addressed by this action and the media addressed by each

2) Risk Summary

Good examples of risk summary tables to include in the package can be found in ROD Guidance Highlights 6-18 through 6-20.

- Identify by medium and operable units, the cumulative risk (if applicable), and land use scenario(s)
- Identify by medium and operable units, if applicable, the primary risk drivers

3) Cleanup levels

Include a brief summary table of remedial action objectives (RAOs) and cleanup levels. If

applicable, identify by medium and operable unit (see highlight 6-21 in the ROD Guidance identified in the Risk Summary section).

4) Description of Alternatives

Describe in a brief summary table the following for each medium and operable unit (if applicable):

- Identify remedial alternatives evaluated and associated costs
- Identify expected time to achieve cleanup levels

5) Preferred Alternative

In bullet format, include the following for each medium and operable unit, if applicable:

- Describe remedy and estimated costs of major activities
- Identify expected time to achieve cleanup levels

6) Stakeholder views

- State's position on proposed action
- Other stakeholder views

B. Detailed Information

1) Site Name, Location, and Brief Description

Include an area map and detailed site maps with well labeled key features. Include an aerial photograph, if available.

2) Site History and Enforcement Activities

Chronological list of *significant* enforcement actions, including principal PRPs.

3) Scope and Role of Operable Unit or Response Action

Discuss how the operable unit or response action addressed by the proposed plan fits into the overall site strategy. This discussion should describe the overall site cleanup strategy, including:

- The planned sequence of actions
- The scope of problems those actions will address
- The authorities under which each action will be/has been implemented (e.g., removal, remedial final, or remedial interim)

4) Site Characteristics

- Describe the Baseline Risk Assessment Conceptual Site Model (CSM) on which the risk assessment and response action are based
- Provide an overview of the site, including the following:
  - Size of site (e.g., acres)
  - Geographical and topographical information (e.g., surface waters, flood plains, wetlands)
  - Surface and subsurface features (e.g., number and volume of tanks, lagoons, structures, and drums on the site)
  - Areas of archaeological or historical importance
- Describe known or suspected sources of contamination
- Describe types of contamination and the affected media (summarize in tables), including the following:
  - Types and characteristics of contaminants (e.g., toxic, mobile, carcinogenic, non-carcinogenic)
  - Quantity/volume of waste
  - Concentrations of contaminants in each medium (see ROD Guidance Highlight 6-15) and figures that illustrate hot spots, e.g. isopleths
  - RCRA hazardous wastes and affected media
- Include figures showing contaminant level changes over time
- Describe location of contamination and known or potential routes of migration, including the following:
  - Lateral and vertical extent of contamination
  - Current and potential future surface and subsurface routes of human or environmental exposure
  - Conceptual site model of the potential migration pathways of COCs in all media
  - Human and ecological populations that are or could be affected
- For sites with groundwater and surface water contamination, describe the following:
  - Aquifer(s) affected or threatened by site contamination, types of geologic materials, approximate depths, whether aquifer is confined or unconfined
  - Sources and source areas of groundwater and surface water contamination, including information on non-aqueous phase liquid extent, location, and characteristics
  - Groundwater flow directions within each aquifer and between aquifers and

groundwater discharge locations (e.g., surface waters, wetlands, other aquifers)
  - Appropriate maps and cross sections showing stratigraphy and monitoring well layout
- Identify any computer models used that served as the basis for risk, fate and transport, or ARAR compliance decisions. For non-EPA recommended model applications, list the input parameters: measured data, literature data, and default inputs used in the predicted outputs. Also, include results of model uncertainty and sensitivity analysis for key site parameters.

5) Current and Potential Future Site and Resource Uses:

Land Use

- Current on-site land uses
- Current adjacent/surrounding land uses
- Reasonably anticipated future land uses, with expected time frames for such uses, and basis for future use assumptions (e.g., zoning maps, nearby development, 20-year development plans, dialogue with local land use planning officials and citizens).

Ground and Surface Water Use

- Current ground/surface water uses on the site and in its vicinity
- Potential beneficial ground/surface water uses (e.g., potential drinking water, irrigation, recreational) and basis for future use assumptions (e.g., Comprehensive State Groundwater Protection Plan, promulgated State classification, EPA groundwater classification guidelines)
- If beneficial use is an anticipated drinking water source, identify the approximate time frame of projected future drinking water use (e.g., groundwater aquifer not currently used as a drinking water source but expected to be utilized in future years)
- Location of anticipated use in relation to location and anticipated migration of contamination.

6) Summary of Risk[1]:

Human Health Risk Assessment

- Identify potentially exposed populations in current and future scenarios (e.g., worker currently working on site, adults and children living on site in the future)

[1] The site information package should include a synopsis of the risk assessment(s). Detailed information may be provided by posting documents to the Board's Quickr site or by providing the Superfund Document Management System document identification number.

- Identify sensitive sub-populations (highly exposed and/or more susceptible) that may be exposed (e.g., farm families, children, subsistence fishermen)
- Identify the routes by which each population group or sub-population group could reasonably be exposed to site contaminants (e.g., ingestion of contaminated groundwater for adults and children, inhalation of volatile contaminants for workers)
- Include major assumptions about exposure frequency, duration, and other exposure factors that were included in the exposure assessment (e.g., exposure frequency [days/year], exposure duration [years], and body surface area for dermal exposure) could be included in an appendix
- Highlight any non-standard exposure assumptions used in the baseline risk assessments
- Provide a summary (preferably a table) that includes the following for all current and future land use scenarios presenting unacceptable risks:
  - Quantified carcinogenic risks for each COC in each exposure medium for each relevant exposure pathway
  - Combined carcinogenic risks reflecting total exposure to COCs in a given medium and pathway of exposure
  - Potential for non-carcinogenic impacts as quantified by the hazard quotient for each COC in each exposure medium for each exposure pathway, as appropriate
  - Potential for combined non-carcinogenic effects in each medium and pathway of exposure as expressed by hazard indices, which reflect the potential additive effects of COCs that affect the same target organ or system
  - Identify key uncertainties in the baseline risk assessment
- If applicable, describe how radiological risks were calculated.

Ecological Risk Assessment (particularly where these risks drive remedy selection)

- What are the assessment endpoints determined to be at risk (the foundation of the remedial decisions, that is, the risk drivers)?
- Which of these risks would require remedial action?
- Which site contaminants were determined to be causal and by which exposure routes (i.e., what is the conceptual model/exposure model?).
- Describe the thresholds of exposure generating risk, and at what level of exposure do the risk levels become severe?
- What is the confidence in the risk estimates? Are there documented effects?
- Describe any site-specific data that were available
- How large is the area for which ecological risks have been estimated?
- Description of key species that could be exposed
- Describe complete exposure pathways, present the conceptual site model
- Monitoring or modeling data and assumptions
- The ROD Guidance (Pages 6-22 to 6-25) provides summary tables that would supply the above requested information.

7) Remedial Action Objectives and Preliminary Remediation Goals

- Present the basis and rationale for remedial action objectives (RAOs) & preliminary remediation goals (PRGs) (e.g., current and reasonably anticipated future land use and potential beneficial groundwater use)
- Describe how the RAOs & PRGs address risks identified in the risk assessment (e.g., how will the risks driving the need for action be addressed by the response action?)
- Identify any key ARARs that are driving the remedy selection
- Where ecological risks drive the remedy, provide the range of protective cleanup levels and their basis.
- Explain how cleanup levels are developed from these goals considering the remedy selection criteria.
- Explain the role of background in the evaluation of cleanup levels.

8) Description of Alternatives:

- Provide a bulleted list and appropriate figures of the major components of each alternative. The package should include the following:
  - Treatment technologies and materials they will address (e.g., source materials constituting principal threats)
  - Containment components of remedy (e.g., engineering controls, cap, hydraulic barriers) and materials they will address (e.g., low concentration source materials, treatment residuals)
  - Description of institutional controls and how they will be implemented and maintained and the duration
  - For alternatives that depend upon monitored natural attenuation, demonstrate compliance with EPA policy
- Provide the total estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected
- Summarize the capital and annual O&M costs associated with each of the major components of each alternative

9) Comparative Analysis of Alternatives

Provide a summary table and discussion comparing alternatives that pass the threshold criteria against the nine criteria.

10) Principal Threat Waste

Clearly identify how source materials constituting principal threats are addressed or provide an explanation of why the site does not have principal threat waste (refer to *A Guide to Principal Threat and Low Level Threat Wastes* - OSWER 9380.3-06FS, November 1991).

11) Preferred Alternative

- Clearly describe the preferred alternative and how, if appropriate, it is different from the alternatives evaluated
- Describe the key factor(s) that led to selecting the preferred alternative (i.e., describe how the remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision)

12) Applicable or Relevant and Appropriate Requirements[2]

- List the principal ARARs for the preferred alternative
- Describe the ARARs that are *drivers* for the remedy
- For each driver, explain *why it is an ARAR* (versus a "to be considered")
- Where actual language of the regulation is key to the Board review, include a copy of the relevant section in an appendix to the package

13) Technical & Policy Issues

Include a discussion of technical or policy issues that require further discussion prior to implementation of the preferred alternative (data gathering, ARARs, treatability studies, modeling.

14) Cost Information[4]

- Include sufficient information to provide an estimate of total resource costs over time (i.e., life cycle costs) for all alternatives including (ROD Guidance Highlight 6-29)
  - Capital costs
  - Annual operations and maintenance costs
  - Net present value of capital and O&M costs
- Cost estimate summaries should address the following:
  - The key cost components/elements for both Remedial Action and O&M activities
  - The major sources of uncertainty in the cost estimate

[2] The site information package should include a synopsis of this information. Detailed information may be provided by posting documents to the Board's Quickr site or by providing the Superfund Document Management System document identification number.

  - The discount rate used
  - The time expected to achieve RAOs and remedial goals
  - Periodic capital and/or O&M costs anticipated in future years of the project (e.g., remedy replacement or rebuild)
  - The methods and resources used for preparing the cost estimate (e.g., estimating guides, vendor quotes, computer cost models)
- For contingency remedy decisions, the total project costs for implementing the contingency should be provided in addition to the costs for the conditional action. This estimate should include treatability study costs, if applicable.
- The assumptions used to develop the cost estimate should be consistent with the stated RAOs and remedial goals (e.g., duration of the cost estimate should match time to achieve cleanup objectives).

15) Letters from Stakeholders and State

Include in the package any technical comments provided by the state or other stakeholders.

Appendix B

SAMPLE AGENDA FOR THE BOARD MEETING

Sample NRRB Meeting Agenda

8:30 – 8:45 Introductions

8:45 – 9:45 Site Presentations (10-15 minutes additional time for state/tribal presentations)

9:45 – 10:00 BREAK

10:00 – 11:30 Questions & Answers

11:30 - 12:30 LUNCH

The following sessions are for EPA staff only

12:30 - 2:15 Deliberations

2:15 - 2:30 BREAK

2:30 - 3:00 Board Business (not site-specific)

3:00 - 5:00 Write and Review Board Recommendations

5:00 ADJOURN

Appendix C

RECOMMENDED OUTLINE

FOR THE BOARD PRESENTATION

Recommended Outline for the Board Presentation

The main emphasis of the presentation, which typically runs one hour in length, should be on the preferred alternative. Hard copies of the presentation should be provided for all Board members at the meeting (preferably two slides per page).

Although not recommended for the presentation, site managers should have key figures available (electronically if possible) from the RI/FS and site information package in case of questions during the discussions.

The following suggested times should be used as a guide but are not mandatory:

- Site Summary & Risk Summary – 10
- RAO & Description of Alternatives – 15
- Preferred Alternative – 25
- Stakeholder Views or Presentation – 10

1) Site Summary

   - Orientation to the key features of the site and surrounding area (including maps)
   - On site and surrounding land use
   - Brief site contamination history, and facility operational history
   - Identify media and primary COCs addressed by this proposed action
   - List the other operable units at the site and the media addressed by each

2) Risk Summary

   - Identify by medium and operable units, the cumulative risk (if applicable), and land use scenario(s)
   - Identify by medium and operable units, if applicable, the primary risk drivers

3) Remedial Action Objectives and PRGs

   - Present the basis and rationale for RAOs and PRGs (e.g., current and reasonably anticipated future land use and potential beneficial groundwater use)
   - Describe how the RAOs and PRGs address risks identified in the risk assessment (e.g., how will the risks driving the need for action be addressed by the response action?)
   - Identify any key ARARs that are driving the remedy selection

4) Description of Alternatives

Describe in bullet format the following for each medium and operable unit (if applicable):

- Briefly identify key components of all remedial alternatives evaluated and associated costs
- Identify risk reduction and expected time to achieve cleanup levels

5) Preferred Alternative

- Provide a brief summary table or figure that compares all the alternatives, clearly illustrating the commonality and differences between each alternative
- For the preferred alternative, identify for each medium and operable unit:
  - The rationale and key factors that led to the selection of the preferred alternative
  - The remedy and estimated costs of major activities
  - Expected time to achieve cleanup levels
  - Major technical and other unresolved issues

6) Stakeholder views

- State's position on the proposed action
- Other stakeholder views

Appendix D

QUESTIONS FREQUENTLY ASKED

BY BOARD MEMBERS

1) NRRB discussion guide

	General	Groundwater	Soil	Sediment
Land/Water Use	What are future use assumptions for the site? Are the bases for these assumptions clear? Are these assumptions consistent with state/local designations? Have efforts been made to discuss the future use with site owners, local government representatives, and other stakeholders? Was reuse/beneficial use considered for land, water, or treatment residuals, as appropriate?	What are future use assumptions for groundwater?	What are future use assumptions for land?	What are future use assumptions for surface water and flood plains?
Exposure Scenarios/Risk Assumptions	Are exposure scenarios and risk assumptions reasonable and consistent with future uses? Have the latest toxicity data been used (e.g., PCBs/dioxin)? What are the risk drivers for the site – media, pathways, contaminants? Is remedial action necessary?	Has the groundwater/surface water pathway been adequately considered?	Has ecological risk been adequately addressed?	Has ecological risk been adequately addressed? Where contaminants are bioaccumulative, were appropriate fish/shellfish consumption rates used for risk analysis and are they reasonable?
Remedial Action Objectives & Cleanup Levels	What are the RAOs and cleanup levels and do they adequately address risk drivers? Is it clear how cleanup levels were selected? Are RAOs and cleanup levels reasonable and clearly linked to each other?	Is it clear whether the goal is restoration and/or containment? What is the expected time frame to meet cleanup levels for groundwater?		How were cleanup levels for biota selected? What is the expected time frame to meet cleanup levels for sediment and RAOs for biota? What level of fish/shellfish consumption is the remedy expected to achieve, and when?

	General	Groundwater	Soil	Sediment
	Were a variety of cleanup levels considered? Are the major ARARs identified and are there any special issues? Have the principal threat wastes been identified and does the proposed remedy anticipate treatment or explain why it is not appropriate?			Where RAOs for biota will not be met for a long time, have interim goals or benchmarks been identified as appropriate?
Remedy Effectiveness	Is the preferred alternative likely to be effective in meeting cleanup levels and RAOs? Are any existing source control actions effective and have any ongoing sources been appropriately incorporated into decision-making? If treatment is proposed, is a pilot necessary and if so, is it proposed? If institutional controls are necessary, are they likely to be effective? Should a contingency remedy be specified and if so, has it been? Does the proposed remedy include monitoring adequate to evaluate remedy effectiveness?	Is DNAPL likely to be present? If yes: Do cleanup goals adequately consider it? Is a TI waiver proposed and adequately supported? If MNA is proposed, is its technical basis clear and adequately supported?		Are sources adequately identified and controlled? For dredging or excavation, are assumptions regarding residual contamination clear and reasonable? Is backfilling necessary, and if so, is it proposed? If capping is proposed, does the proposed design consider site-specific factors such as storm & ice scour? If MNR is proposed, is it clear what processes are being relied upon (e.g., transformation, burial, dispersion) and are they adequately supported?
Cost	Are the cost estimates for the alternatives detailed enough and are costs reasonable? Is the action likely to be Fund or PRP lead? If fund lead, what is its priority likely to be for funding?	If partial DNAPL removal or in-situ treatment is proposed, is it adequately supported in terms of risk reduction or increased effectiveness of containment?	Have a variety of soil removal depths or areas been evaluated?	If dredging or excavating is proposed, does the cost estimate include all necessary phases (e.g., water treatment, transport, & sediment treatment or disposal)? Have on-site or near-site disposal options been adequately considered?

	General	Groundwater	Soil	Sediment
	For fund lead sites, does the remedy include a LTRA, i.e., subject to the 10 yr clock? Does the cost presentation allow a realistic comparison of costs of alternatives over the life of the project? Are O&M costs reasonable and, where appropriate, alternative-specific?			If capping is proposed, does the cost estimate include realistic monitoring and cap repair costs? Does the proposed cap design incorporate an appropriate degree of conservatism?
Other Alternatives or Approaches	Are there other alternatives or approaches which could achieve remedial action goals with less cost or more reliability? Has a combination of alternatives been adequately evaluated? Are there opportunities to accelerate cleanup?		Have in-situ treatment options been adequately considered?	Have all three major options (dredging/excavating, capping, MNR) been adequately evaluated?
Positions of Stakeholders	Have positions of Tribes, State, PRPs, community, and trustees been adequately considered? For Fund Lead sites, is the State prepared to share costs? Does the proposed remedy appropriately consider any community plans for redevelopment?	What are positions of stakeholders regarding containment vs. restoration?		What are positions of stakeholders regarding in-situ vs. ex-situ alternatives? Does the proposed remedy appropriately consider any Trustee plans for restoration?
Consistency	Is the proposed action consistent with national guidance and other national and regional agency decisions?			
Green Remediation	Is there an opportunity to use sustainable technologies to support the preferred alternative? Has consideration been given			

	General	Groundwater	Soil	Sediment
	to OSWER's Principles for Greener Cleanups, 8/27/09?			

2) Mining Sites

- Have RAOs been adequately justified by human health/ecological risk reduction? Preferred alternatives should likewise be supported by risk reduction, not just ARARs.

- Have ARARs been clearly identified? Is the ARAR evaluation sufficiently rigorous?

- Does the preferred remedy consider use of phased approaches or interim actions where appropriate due to the high costs and uncertainties associated with site-wide strategies?

- Does the preferred remedy identify and address the highest priority sources of acid mine drainage (AMD) generation, taking into consideration the relative AMD generating potential, and the measured loadings of contaminants to surface water? Due to the high volume of waste materials typically present at mine sites, and many other potential sources of AMD, it is important that the heterogeneity of waste materials be adequately characterized. Does the preferred alternative address these highest priority sources first?

- Has the long-term effectiveness of on-site remedial actions been sufficiently demonstrated through pilot scale testing or other rigorous evaluation? This demonstration is especially important if the preferred remedy is irreversible (difficult to "undo") if it fails (e.g., disposal in abandoned mine workings, subaqueous disposal, etc).

- Have opportunities for reuse of mine wastes been explored?

- Are peak flows during storm events or snow melts adequately addressed in surface water remedies? Does the preferred remedy take maximum advantage of existing features, such as dams, mine pits, etc. for possible use in flow equalization?

- Have passive technologies for treatment of acid mine drainage been fully explored?

3) Contaminated Sediment Sites

Source Control/Background

- Were all significant continuing sources of sediment contamination at the site identified and considered in selecting cleanup levels?
- Where sources are remediated or contained, has the effectiveness of the source control action been monitored?
- Where there is uncertainty about the timing or effectiveness of source control actions, how has the potential for recontamination been considered in the proposed remedy?

- To what extent is the proposed sediment remedy expected to be beneficial if source control is not effective or not complete by the time the proposed sediment remedy is planned to be implemented?
- Were background contaminant concentrations an issue in selection of cleanup levels and if so, how were they considered?

Community Involvement

- How is the proposed remedy expected to affect the local community, including impacts that occur during remedy implementation?
- What is the level of community support for the proposed remedy? If there are aspects of major concern to the community, how have these concerns been addressed or considered?

Coordination Tribes, States, Local Governments, Trustees

- What is the level of support by these entities for the proposed remedy? If there are aspects of major concern, how have these concerns been addressed or considered?
- Are Total Maximum Daily Loads (TMDLs) under development/developed for this water body and if so, how has the region coordinated with the state and with EPA water programs? How was the TMDL considered in selection of remedy or cleanup levels?
- Are any Trustee restoration activities planned concurrent with or to follow the Superfund action? If so, how have the remediation and restoration plans been coordinated?

Conceptual Site Model/Modeling

- Does the CSM identify all major contaminant sources, contaminants of concern, affected media, existing and potential exposure pathways, and human and ecological receptors that are at risk?
- Was sediment transport and/or stability evaluated site-specifically? How were the results incorporated into remedy selection?
- How are floodplains considered in the proposed remedy? Where cleanup levels differ between aquatic sediment and floodplain, how was sediment/soil transport considered?
- Where mathematical models were used, how was uncertainty addressed? Were any parts of the modeling study peer reviewed?

Remedy

- Were each of the three major cleanup methods (i.e., dredging, capping, monitored natural recovery [MNR]) evaluated and if not, why not?
- How were the proposed PRGs derived?
- What are the RAOs for the site and how long is it expected to take to achieve them?
- If dams are present at the site, is their presence or absence necessary for the remedy and if so, how was maintenance or removal addressed?
- What long-term monitoring is planned to evaluate remedy effectiveness?

- For areas where sediment removal is proposed, have dewatering, pre/treatment of water and/or sediment, and disposal been included in the cost estimate? Is backfilling expected to be necessary to achieve cleanup levels and if so, is it included in the cost estimate?
- For areas where capping is proposed, is flood capacity, cap material stability, and/or groundwater advection through the cap an issue and if so, how have they been addressed?
- For areas where MNR is proposed, what processes are expected to lead to recovery and how long is it expected to take?
- For all sediment remedies, what residual concentrations/risks are expected?
- Are baseline data for sediment and biota sufficient for monitoring remedy effectiveness?

4) Remedy Cost Estimates:

Cost estimates of remedial alternatives developed during the feasibility study should address the following questions (NOTE: See OSWER Directive 9355.0-75, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, for cost element checklists and other related materials, sample formats, and guidance):

- Is the cost estimate comprehensive? Has the cost estimate been defined in sufficient detail? Does the estimate address all of the major components of the remedial alternative? Are key processes and technologies identified?

- Is the cost estimate presented in a clear and logical manner?

- Does the scope of the cost estimate address the RAOs and remedial goals identified for the remedial alternative?

- Are the major assumptions used in developing the cost estimate identified and discussed?

- Are the key cost drivers (i.e., largest cost elements) in the cost estimate identified and discussed?

- Are the major sources of uncertainty associated with the cost estimate identified and discussed? Has the impact of these uncertainties been evaluated? (e.g., qualitative or quantitative sensitivity analysis)

- If the cleanup approach does not work as planned, has a backup remedial approach been specified? If so, what are the costs associated with this contingency remedy?

- Are periodic capital and/or O&M (including monitoring) costs anticipated in future years

of the project (i.e., remedy replacement or rebuild, analytical sampling, enforcement surveillance)? If so, what are they?

- What discount rate was used and what was the basis for its selection?
- What is the duration of the cost estimate? Is the duration of the cost estimate the same as the anticipated project duration? (i.e., the projected time frame to achieve RAOs and remedial goals)
- What resources were used in developing the estimate? (e.g., software tools, vendor quotes, unit price books)
- Who prepared the estimate? (e.g., Army Corps of Engineers, EPA technical support contractor, PRP technical support contractors)
- Will technical background materials be available in the Administrative Record file? (e.g., technical appendices of RI/FS or other technical memoranda)

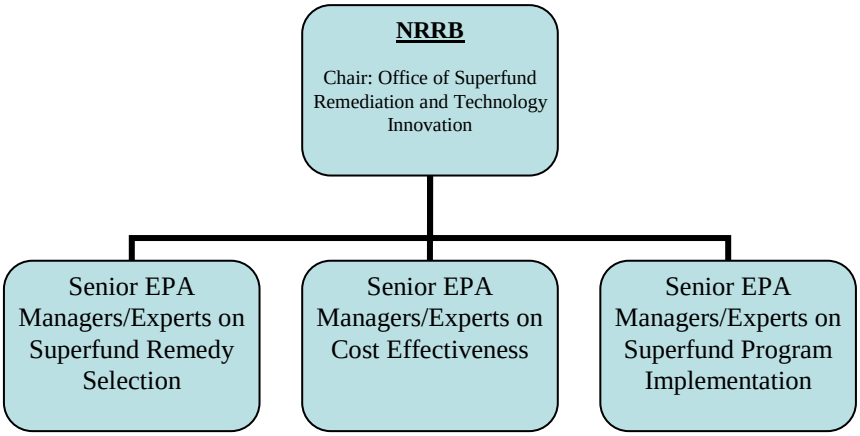
Appendix E

COMMUNITY GUIDE

The National Remedy Review Board (NRRB)
A Community Guide

Why does EPA have a NRRB?
The National Remedy Review Board (NRRB) review is an internal EPA process that is intended to help control remedy costs and to promote both consistent and cost-effective decisions. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) mandates that, in addition to being protective, all remedies must be cost-effective.

What is the NRRB and who is a member?
The Board is a technical and policy review group made up of Agency staff that has experience with both regional and headquarters perspectives in the Superfund remedy selection process.



What does the NRRB do?
The overall goal of the NRRB review is to ensure sound decision making consistent with current law, regulations, and guidance.

The NRRB considers five factors when making recommendations to achieve this goal:

- the nature of the site;
- risks posed by the site;
- regional, state, tribal and potentially responsible party opinions on proposed actions;
- the quality and reasonableness of the cost estimates; and
- any other relevant factors or program guidance in making advisory recommendations.

How does a NRRB review work?
The documents prepared for the NRRB, and its meetings are part of EPA's internal process and are not open to the general public. Reviews generally occur before the region issues the proposed plan. The intent of this early Board review is to offer a critical discussion on key remedy selection and cost effectiveness issues before the Agency formalizes its position on a preferred cleanup strategy that is then presented as a proposed plan for public comment.

How can the community be involved in the NRRB process?
The NRRB and its current process do not alter existing mechanisms for potentially-responsible party (PRP) and stakeholder involvement in the remedy selection process. Those PRP and stakeholder groups that have not been working closely with the Agency early in the remedy selection process will still have the opportunity to comment formally on the proposed action during the proposed plan comment period. However, since this is an EPA internal deliberative process, PRP and stakeholder groups are not involved in any direct discussions with the NRRB nor are they involved in NRRB meetings or pre-meeting calls.

At sites where EPA has awarded a Technical Assistance Grant (TAG) or recognized a Community Advisory Group (CAG), the site manager should notify them of the pending review. The Region should offer the TAG/CAG groups an opportunity to provide a technical summary. Where the site manager has established close working relationships with other stakeholder groups early in the RI/FS process, the site manager may also offer these groups the opportunity to submit written technical comments. The PRPs at a site are also offered an opportunity to submit written technical comments.

The stakeholder's and PRP's summaries are attached to the site information package submitted to the NRRB for review.

What role do tribal representatives and States have in the NRRB process?
For each site, the site manager is responsible for inviting appropriate tribal representatives to participate in the presentation plus question and answer portions of the NRRB meeting. Typically, these representatives do not participate in the deliberative discussion; which the NRRB normally limits to EPA personnel; however, the tribal representatives may be invited to participate for a portion of the deliberations where the site is a tribal-lead fund financed decision or tribal-lead enforcement decision where tribal representatives seek EPA concurrence. Historically, tribal representatives have not been present for the NRRB's deliberative discussions. Tribal representatives are also offered the opportunity to summarize their technical issues. In addition, States are offered the same level of participation.

What happens once the NRRB makes a recommendation?
The NRRB typically issues its recommendations in the form of a memorandum from the Board chair to the appropriate regional division director. Regions are requested to provide a response to the Board's recommendations by the time the proposed plan is released for public comment. At that point, the region should place both memoranda in the appropriate site administrative record and information repository.

Where can I find a record of the NRRB reviews?
The Agency expects to make the Board recommendations and the regional response available publicly as soon as it is reasonable and appropriate to do so. Generally, Board recommendations will be posted on the website (http://www.epa.gov/superfund/programs/nrrb/) within thirty days of signature.